## REMARKS

The Office Action dated January 27, 2004 has been received and carefully studied.

The Examiner rejects Claims 14, 15, 16, 17-23, 24, 25-28 and 31-35 under 35 U.S.C. §103(a) as being unpatentable over Henshaw et al. in view of Morita et al. The Examiner states that Henshaw et al. teach a method of producing a bending-resistant, elongated body comprising: providing an elongated blank 11 having a cavity 16 extending essentially along the entire length of the blank 11, the cavity 16 having a longitudinal axis, the cavity 16 being enclosed in the blank 11 but for first and second spaced openings at opposite ends of the longitudinal axis, the inner surface 16 of which cavity is at a distance from the mass center (the mass center is in the vicinity of numeral 15 in fig. 1) of the blank 11 seen in a section at right angles to its longitudinal axis and is arranged concentrically around the mass center, the blank 11 being formed from a metallic material, inserting a fiber composite body 15 formed from a plurality of fibers in a non-metallic binder 13 into at least one of the first and second openings of the cavity 16, and affixing in the cavity 16 the fiber composite body 15 with an outer surface essentially congruent with the inner surface of the cavity 16, wherein a majority of fibers in the fiber composite body both extend essentially parallel to the longitudinal axis of the elongated blank 11 and are elongated along the whole of its length. The Examiner admits that Henshaw et al. do not teach a blank having at least three cavities and affixing fiber composite bodies in the cavities, but notes that Henshaw et al. do teach other embodiments with blanks 11 having more than one cavity with fiber composite bodies 15 in the cavities. The Examiner newly cites Morita for its teaching that it is known to make blanks that have at least three fiber

composite bodies 2 arranged in the blanks, and concludes that it would have been obvious to have provided the invention of Henshaw et al. with at least three cavities and affixing fiber composite bodies in the cavities in order to obtain the desired combination of stiffness and weight reduction in the blank.

By the accompanying amendment, the independent claims have been amended to recite a method of modifying the bending resistance of an elongated body. The claims further state the step of determining a desired bending resistance, and locating in the blank the cavities that are not concentric about the mass center so as to achieve the desired bending resistance. Support for the amendment can be found in the paragraph bridging pages 3-4 of the specification.

An object of the present invention is to achieve a sufficient reduction in weight, while maintaining the bending resistance of the structure. By using the combination of a concentric cavity, coupled with at least two other cavities appropriately positioned in the blank, it is possible to control the bending resistance of the body to a desired amount. Thus, the bending resistance of the elongated body can be increased by locating the non-concentric cavities a greater distance from the mass center, and can be decreased by locating the non-concentric cavities closer to the mass center.

In contrast, Henshaw's invention was motivated by a need to provide "an integrated metal composite structure having a 40 to 60 percent weight saving over equivalent all metal structures" (column 2, lines 14-16). Henshaw et al. was not concerned with bending resistance, and therefore does not disclose or suggest the claimed steps of determining a desired bending resistance and locating at least two cavities in the blank at appropriate positions to achieve this desired bending resistance.

The Examiner cites Morita et al. for its teaching of blanks having at least three cavities. An English translation of Morita is enclosed for the convenience of the Examiner. Fiber-reinforced plastic (FRP) rods are buried in a rubber rod as a base material. The FRP rods increase the flexural rigidity of the rubber base. Although the Examiner considers Morita analogous art to Henshaw because they both are concerned with reinforcing a blank using fibers, Applicants respectfully submit that one skilled in the art would not be motivated to modify Henshaw in view Morita because Henshaw is reinforcing a metal blank to reduce its weight, not to provide flexural rigidity to a rubber blank as taught by Morita. Indeed, Morita teaches that using a plurality of FRP rods buried in a rubber core is far superior in flexural rigidity to a single FRP rod. However, Henshaw is only concerned with reducing the weight of a metal blank, and thus one skilled in the art looking to improve Henshaw would not consult a reference that is reinforcing a blank made of rubber for completely different reasons.

Furthermore, even were the skilled artisan motivated to consult Morita, the combination of Henshaw and Morita does not teach or suggest determining a desired bending resistance of the elongated body and locating the cavities that receive the fiber according to that desired resistance.

The Examiner rejects claims 29 and 30 under 35 U.S.C. §103(a) as being unpatentable over Henshaw et al. in view of Morita et al. and further in view of Mahoney et al. (U.S. Patent No. 5,207,848). The Examiner cites Mahoney et al. for its disclosure of a fiber composite body that is tubular and has a central bore devoid of fibers.

Claim 29 is believed to be allowably by virtue of its dependence for the reasons states above. Claim 30 has been cancelled.

Reconsideration and allowance are respectfully requested in view of the foregoing.

Respectfully submitted,

Kevin S. Lemack
Reg. No. 32,579
176 E. Main Street - Suite 7
Westboro, Massachusetts 01581
TEL: (508) 898-1818